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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,821	08/30/2000	John Laurence Melanson		2274

7590 08/18/2003
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EXAMINER

D AGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 08/18/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

10

Office Action Summary

Application No.

09/651,821

Applicant(s)

MELANSON, JOHN LAURENCE

Examiner

Stephen M. D'Agosta

Art Unit

2683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1, 3-8 and 26 have been considered but are moot in view of the new ground(s) of rejection. See new rejection below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3 and 6-8 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhiro JP-11332230 and further in view of Grant EP1130770A2 and Colotti US 5,537,305 (hereafter Kazuhiro, Grant and Colotti).

As per **claim 1**, Kazuhiro teaches a system comprising:

A switching power supply used in a radio receiver (last sentence of abstract teaches a receiver)

Switched mode circuitry operating at a selected switching frequency (abstract teaches a VCO Crystal Oscillator that is used to determine the frequency of a switching power supply).

Circuitry for setting said switching frequency of said switched mode circuitry as a function of a frequency of a signal being received by said radio receiver (abstract teaches a CPU/controller that controls oscillating frequency of the crystal oscillator circuit in such a way that the harmonic wave frequency of the switching frequency does not become identical with the receiving frequency)

But is silent on an AM radio receiver, said switched mode circuitry comprising audio amplifier for driving an audio channel and circuitry setting said switching

frequency (of said switched mode circuitry) to a selected one of a set of frequency steps as a function of the AM signal received by said receiver.

Grant teaches a low power audio device (radio receiver and Class D amplifier).

Colotti teaches an improved switching power supply with a variable frequency switching circuit (abstract) [for use in PWM-type converter] whereby the chopping frequency is chosen to avoid interference with the sensitive equipment (C1, L54 to C2, L5).

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro, such that it is used in an AM radio receiver and selects a set of frequency steps as a function of the AM signal, to provide means for the system to be used to avoid interference in an AM receiver.

~~As per **claim 2**, Kazuhiro teaches claim 1 wherein said switched mode circuitry comprises a switching power supply (title).~~

As per **claim 3**, Kazuhiro teaches claim 1 **but is silent on** wherein said switched mode circuitry comprises a Class D amplifier.

The examiner puts forth that several classes of amplifiers are known in the art, including Class A, B, AB, C and D. Class D amplifiers are also known as switching amplifiers. Further to this point is the fact that Kazuhiro shows an (operational) amplifier in his diagram (#7) which is broadly interpreted by the examiner to be a Class D amplifier.

~~The examiner takes Official Notice that the use of Class D amplifiers are well known in the art of audio engineering.~~

Grant teaches a low power audio device (radio receiver and Class D amplifier).

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro, such that a Class D amplifier is used, to provide efficiency gains which are associated with a Class D amplifier (as opposed to using another more inefficient amplifier).

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As per **claim 6**, Kazuhiro teaches claim 1 wherein said circuitry for setting switching frequency includes a CPU (eg. microcontroller) operable to select said switching frequency in response to selection of a reception frequency band by user input (abstract and figure).

As per **claim 7**, Kazuhiro teaches claim 1 wherein said circuitry for setting switching frequency detects said frequency of said signal received by said radio receiver by measuring a local oscillator frequency (abstract – teaches control voltage oscillator is controlled by a CPU which determines the receiving frequency of a receiver).

As per **claim 8**, Kazuhiro teaches claim 1 wherein said switching frequency is selected such that at least one harmonic of said switching frequency lies outside a frequency band including said signal being received by said radio receiver (abstract – teaches avoiding reception interference caused by harmonic wave AND that the CPU controls the oscillating frequency such that the harmonic wave of the switching frequency does not become identical with the receiving frequency of the receive which is broadly interpreted by the examiner to read on “lies outside a frequency band including said signal being received”).

As per **claim 26**, Kazuhiro teaches claim 1 **but is silent on** wherein said circuitry for setting said switching frequency is operable to set said switching frequency to a selected one of a set of frequency steps differing in frequency by at least two percent.

Colotti teaches the chopping frequency of which is chosen to avoid interference with the sensitive equipment with which it is employed (C1, L54-60 and C2, L30 to C3, L32) which reads on the claim.

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro , such that the set of frequency steps differs in frequency by at least two percent, to provide means for reducing interference (from sensitive frequencies, harmonics, etc.).

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhiro/Grant/Colotti in view of Wilcox et al. US Patent 4,048,561 (hereafter Wilcox).

As per **claim 4**, Kazuhiro teaches claim 1 wherein said circuitry for setting switching frequency of said switched mode circuitry comprises;

A crystal oscillator for generating switching frequency from a crystal (abstract)

But is silent on

A plurality of crystals of differing resonance frequencies

Control circuitry for selecting said selected one of said crystals

Wilcox teaches transmitter/receiver that uses multiple crystals for each oscillator which are alternatively selectable (C3, L44-68 to C4, L1-2 and C12, L63-68 to C13, L1-21 and figure 1).

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro, such that a plurality of crystals with differing frequencies are used/selected, to provide multiple fixed-frequency oscillators instead of one oscillator that must perform over a large range of frequencies.

Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhiro/Grant/Colotti in view of Foord al. US Patent 4,868,539 (hereafter Foord).

As per **claim 5**, Kazuhiro teaches claim 1 **but is silent on** wherein said circuitry for setting switching frequency of said switched mode circuitry comprises;

A signal generator for generating a base frequency, A programmable divider for dividing said base frequency by a selected divisor to generate said switching frequency and Control circuitry for selecting said divisor.

Foord teaches teaches a system for an audio frequency signal that uses a crystal oscillator to generate a base frequency (C4, L23-35) and a programmable divider (C9, L45-50)

It would have been obvious to one skilled in the art at the time of the invention to modify Kazuhiro, such that the system generates a base frequency and uses a programmable divider and selects said divisor, to provide means for the system to obtain a divided base frequency to form a control frequency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

SMD
August 12, 2003


WILLIAM TROST
SUPERVISORY PATENT EXAMINER
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